```
============================================================
Sequence Listing could not be accepted due to errors.
See attached Validation Report.
If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).
Reviewer: Anne Corrigan
Timestamp: [year=2009; month=4; day=25; hr=19; min=14; sec=39; ms=583; ]
============================================================



*************************************************************
Reviewer Comments:
<120> Device a method for detecting low density lipoprotein receptor
gene mutations associated with familial hypercholesterolemia

The above <120> response exceeds the Sequence Rules' required 72-
character line limit; please adjust the line.

<210> SEQ 1

Please remove the "SEQ" in the above <210> response; just show <210> 1.
This error appears in subsequent sequences.

(from Sequence 1)
atatggtatt tattatgcac cgagtgtggc tctaatcact tttttttttt taattgagag 10920
acagcctggc tctgttgatt gggctggagt gcagtggcgc gaccgtagct cattgcagcc 10980

Please show only one space between groups of nucleotides.

actgcctggc agaggctgcg agc atg ggg ccc tgg ggc tgg aaa ttg cgc  15350
      met gly pro trp gly trp lys leu arg
      -21 -20             -15
tgg acc gtc gcc ttg ctc ctc gcc gcg gcg ggg act gca g gtaaggcttg 15400
trp thr val ala leu leu leu ala ala ala gly thr ala v
         -10                 -5                -1  1


Please show the initial letters of the above amino acids in upper-case
letters (e.g., Met Gly). Please show all codons as three letters with a
space between each codon.
```

<210> SEQ 2

<211> 24

<212> DNA

<213> Artificial sequence

<220>

<221> oligonucleotide

<223> Ex1F

Remove "SEQ" from the above <210> line; also, move "oligonucleotide" to
the <223> line. Same error in subsequent sequences.
****

Application No: 10542937   Version No: 2.0

Input Set:

Output Set:

Started:	2009-04-15 14:29:52.963
Finished:	2009-04-15 14:30:12.857
Elapsed:	0 hr(s) 0 min(s) 19 sec(s) 894 ms
Total Warnings:	341
Total Errors:	2028
No. of SeqIDs Defined:	259
Actual SeqID Count:	238

Error code	Error Description
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 259	Found undefined lettercode; POS (281) SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 300, Calculated : 301 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 360, Calculated : 361 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 420, Calculated : 421 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 480, Calculated : 481 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 540, Calculated : 541 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 600, Calculated : 601 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 660, Calculated : 661 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 720, Calculated : 721 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 780, Calculated : 781 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 840, Calculated : 841 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 900, Calculated : 901 SEQID(0)
E 254	The total number of bases conflicts with running total, Input:

Input Set:

Output Set:

Started:	2009-04-15 14:29:52.963
Finished:	2009-04-15 14:30:12.857
Elapsed:	0 hr(s) 0 min(s) 19 sec(s) 894 ms
Total Warnings:	341
Total Errors:	2028
No. of SeqIDs Defined:	259
Actual SeqID Count:	238

Error code	Error Description
	961 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1020, Calculated : 1021 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1080, Calculated : 1081 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1140, Calculated : 1141 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1200, Calculated : 1201 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1260, Calculated : 1261 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1320, Calculated : 1321 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1380, Calculated : 1381 SEQID(0)
E 254	The total number of bases conflicts with running total, Input: 1440, Calculated : 1441 SEQID(0) This error has occured more than 20 times, will not be displayed
E 259	Found undefined lettercode; POS (8762) SEQID(0)
E 259	Found undefined lettercode; POS (8773) SEQID(0)
E 259	Found undefined lettercode; POS (8794) SEQID(0)
E 259	Found undefined lettercode; POS (8805) SEQID(0)
E 259	Found undefined lettercode; POS (8816) SEQID(0)
E 259	Found undefined lettercode; POS (8827) SEQID(0)
E 259	Found undefined lettercode; POS (8838) SEQID(0)
E 259	Found undefined lettercode; POS (8849) SEQID(0)
E 259	Found undefined lettercode; POS (8860) SEQID(0)

```
              Input Set:


              Output Set:



              Started:   2009-04-15 14:29:52.963
             Finished:   2009-04-15 14:30:12.857
              Elapsed:   0 hr(s) 0 min(s) 19 sec(s) 894 ms
       Total Warnings:   341
         Total Errors:   2028
  No. of SeqIDs Defined:   259
     Actual SeqID Count:   238
```

Error code   Error Description

```
E   259    Found undefined lettercode; POS (8871) SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)

W   333       tabs used in amino acid numbering  SEQID (0)

W   333       tabs used in amino acid numbering  SEQID (0)

E   342    'n' position not defined  found at POS:  26149 SEQID(0)

E   342    'n' position not defined  found at POS:  26158 SEQID(0)

E   342    'n' position not defined  found at POS:  26164 SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)

E   342    'n' position not defined  found at POS:  26266 SEQID(0)

E   342    'n' position not defined  found at POS:  26287 SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)

E   323    Invalid/missing amino acid numbering  SEQID (0)  POS (1)

E   342    'n' position not defined  found at POS:  28723 SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)

E   342    'n' position not defined  found at POS:  28786 SEQID(0)

E   342    'n' position not defined  found at POS:  28807 SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)

E   342    'n' position not defined  found at POS:  28867 SEQID(0)

E   342    'n' position not defined  found at POS:  28882 SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)

E   342    'n' position not defined  found at POS:  31357 SEQID(0)

W   333       tabs used in amino acid numbering  SEQID (0)
```

```
        Input Set:


        Output Set:



            Started:   2009-04-15 14:29:52.963
           Finished:   2009-04-15 14:30:12.857
            Elapsed:   0 hr(s) 0 min(s) 19 sec(s) 894 ms
     Total Warnings:   341
       Total Errors:   2028
No. of SeqIDs Defined:   259
  Actual SeqID Count:   238
```

Error code	Error Description
E 342	'n' position not defined found at POS: 31443 SEQID(0)
W 333	tabs used in amino acid numbering SEQID (0)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (4)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (5)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (9)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (10)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (14)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (15)
E 342	'n' position not defined found at POS: 31626 SEQID(0)
E 342	'n' position not defined found at POS: 31632 SEQID(0)
E 342	'n' position not defined found at POS: 31653 SEQID(0)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (3)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (5)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (8)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (10)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (13)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (15)
E 342	'n' position not defined found at POS: 31719 SEQID(0)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (2)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (5)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (7)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (10)

```
          Input Set:


          Output Set:



          Started:     2009-04-15 14:29:52.963
          Finished:    2009-04-15 14:30:12.857
          Elapsed:     0 hr(s) 0 min(s) 19 sec(s) 894 ms
   Total Warnings:     341
     Total Errors:     2028
No. of SeqIDs Defined: 259
  Actual SeqID Count:  238
```

Error code	Error Description
E 323	Invalid/missing amino acid numbering SEQID (0) POS (12)
E 323	Invalid/missing amino acid numbering SEQID (0)at Protein (15)
E 342	'n' position not defined found at POS: 31806 SEQID(0)
E 342	'n' position not defined found at POS: 31833 SEQID(0)
E 323	Invalid/missing amino acid numbering SEQID (0) POS (1) This error has occured more than 20 times, will not be displayed
E 342	'n' position not defined found at POS: 32096 SEQID(0)
E 342	'n' position not defined found at POS: 33124 SEQID(0) This error has occured more than 20 times, will not be displayed
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
W 333	tabs used in amino acid numbering SEQID (0)
E 253	The number of bases differs from <211> Input: 60000 Calculated:62488 SEQID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID

```
                  Input Set:


                  Output Set:



             Started:  2009-04-15 14:29:52.963
            Finished:  2009-04-15 14:30:12.857
             Elapsed:  0 hr(s) 0 min(s) 19 sec(s) 894 ms
      Total Warnings:  341
        Total Errors:  2028
  No. of SeqIDs Defined:  259
    Actual SeqID Count:  238
```

Error code	Error Description
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)

Input Set:

Output Set:

Started:	2009-04-15 14:29:52.963
Finished:	2009-04-15 14:30:12.857
Elapsed:	0 hr(s) 0 min(s) 19 sec(s) 894 ms
Total Warnings:	341
Total Errors:	2028
No. of SeqIDs Defined:	259
Actual SeqID Count:	238

Error code	Error Description
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)

Input Set:

Output Set:

Started:	2009-04-15 14:29:52.963
Finished:	2009-04-15 14:30:12.857
Elapsed:	0 hr(s) 0 min(s) 19 sec(s) 894 ms
Total Warnings:	341
Total Errors:	2028
No. of SeqIDs Defined:	259
Actual SeqID Count:	238

Error code	Error Description
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID
W 402	Undefined organism found in <213> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 202	Invalid input format; Value must be an integerin <210> in SEQID (0)
W 402	Undefined organism found in <213> in SEQ ID (0) This error has occured more than 20 times, will not be displayed
E 257	Invalid sequence data feature in <221> in SEQ ID (0)
E 257	Invalid sequence data feature in <221> in SEQ ID (0) This error has occured more than 20 times, will not be displayed
E 253	The number of bases differs from <211> Input: 20 Calculated:19
E 259	Found undefined lettercode; POS (22) SEQID(0)
E 259	Found undefined lettercode; POS (23) SEQID(0)
E 259	Found undefined lettercode; POS (24) SEQID(0)
E 259	Found undefined lettercode; POS (25) SEQID(0)
W 112	Upper case found in data; Found at position(25) SeqId(0)
W 112	Upper case found in data; Found at position(26) SeqId(0)
W 112	Upper case found in data; Found at position(27) SeqId(0)
E 253	The number of bases differs from <211> Input: 21 Calculated:28
E 259	Found undefined lettercode; POS (21) SEQID(0)
E 259	Found undefined lettercode; POS (22) SEQID(0)

```
            Input Set:


            Output Set:



            Started:    2009-04-15 14:29:52.963
            Finished:   2009-04-15 14:30:12.857
            Elapsed:    0 hr(s) 0 min(s) 19 sec(s) 894 ms
     Total Warnings:    341
       Total Errors:    2028
No. of SeqIDs Defined:  259
   Actual SeqID Count:  238
```

Error code	Error Description
E 259	Found undefined lettercode; POS (23) SEQID(0)
E 259	Found undefined lettercode; POS (24) SEQID(0)
W 112	Upper case found in data; Found at position(24) SeqId(0)
W 112	Upper case found in data; Found at position(25) SeqId(0)
W 112	Upper case found in data; Found at position(26) SeqId(0)
E 253	The number of bases differs from <211> Input: 20 Calculated:27
E 259	Found undefined lettercode; POS (21) SEQID(0) This error has occured more than 20 times, will not be displayed
W 112	Upper case found in data; Found at position(24) SeqId(0)
W 112	Upper case found in data; Found at position(25) SeqId(0)
W 112	Upper case found in data; Found at position(26) SeqId(0)
E 253	The number of bases differs from <211> Input: 20 Calculated:27
W 112	Upper case found in data; Found at position(24) SeqId(0)
W 112	Upper case found in data; Found at position(25) SeqId(0)
W 112	Upper case found in data; Found at position(26) SeqId(0)
E 253	The number of bases differs from <211> Input: 20 Calculated:27
W 112	Upper case found in data; Found at position(24) SeqId(0)
W 112	Upper case found in data; Found at position(25) SeqId(0)
W 112	Upper case found in data; Found at position(26) SeqId(0)
E 253	The number of bases differs from <211> Input: 20 Calculated:27
W 112	Upper case found in data; Found at position(24) SeqId(0)
W 112	Upper case found in data; Found at position(25) SeqId(0)
W 112	Upper case found in data; Found at position(26) SeqId(0)

```
           Input Set:


           Output Set:



           Started:  2009-04-15 14:29:52.963
          Finished:  2009-04-15 14:30:12.857
           Elapsed:  0 hr(s) 0 min(s) 19 sec(s) 894 ms
    Total Warnings:  341
      Total Errors:  2028
No. of SeqIDs Defined:  259
 Actual SeqID Count:  238
```

Error code	Error Description
E 253	The number of bases differs from <211> Input: 20 Calculated:27
W 112	Upper case found in data; Found at position(27) SeqId(0)
W 112	Upper case found in data; Found at position(28) SeqId(0) This error has occured more than 20 times, will not be displayed
E 253	The number of bases differs from <211> Input: 23 Calculated:30
E 253	The number of bases differs from <211> Input: 23 Calculated:30
E 253	The number of bases differs from <211> Input: 19 Calculated:26
E 253	The number of bases differs from <211> Input: 23 Calculated:30
E 253	The number of bases differs from <211> Input: 23 Calculated:30
E 253	The number of bases differs from <211> Input: 21 Calculated:28
E 253	The number of bases differs from <211> Input: 21 Calculated:28
E 253	The number of bases differs from <211> Input: 23 Calculated:30
E 253	The number of bases differs from <211> Input: 23 Calculated:30
E 253	The number of bases differs from <211> Input: 21 Calculated:28
E 253	The number of bases differs from <211> Input: 21 Calculated:28
E 253	The number of bases differs from <211> Input: 21 Calculated:28 SEQID (0)
E 252	Calc# of Seq. differs from actual; 259 seqIds defined; count=238
E 250	Structural Validation Error; Sequence listing may not be indexable

SEQUENCE LISTING

<110>   Mata Lopez, Pedro
        Mozas Alonso, Pilar
        Pocovi Mieras, Miguel
        Tejedor Hernandez, Diego
        Mallen Perez, Miguel
        Alonso Karlezi, Alberto
        Reyes Leal, Gilbert
        Castillo Fernandez, Sergio
        Martinez Martinez, Antonio
<120> Device a method for detecting low density lipoprotein receptor gene mutations associated
with familial hypercholesterolemia
<130> U 015859-4
<140> 10/542,937
<141> 2006-09-08
<160> 259

<210> SEQ 1
<211> 60000
<212> DNA
<213> human
<220>
<221> gene
<223> rLDL
<400> 1

aaaagatggt gtatccattc aatggaacat tatttggcct ttaaaaggaa ggaaattctc 60
actgagcata gtggtttatg cctgtaatcc cagcactttg ggaggctgag gcagggggga 120
gggggcggtt cacctgaggt caggagttca agaccagcct ggccaacatg gtgaaatccc 180
gtctctacta aaaatacaaa aaaattagcc gagtgtggtg gcacacacct gtaagccagg 240
ctacacggga gactgaggca ggagaatcgc tggaacccgg.gaggcagagg ctgcagagag 300
ccgagattgc gtcactgcac tccagcctgg gtgacagagc gagactcttg tcttaaaaaa 360
aaaaagaagg aaggaaggaa ggaaggaagg aagttctgac acaggctcca acacagatgt 420
tatgctcagt gaaataagcc agacatgaaa ggacaaatac tgcctgatct cattcataag 480
aggtccctag aattgtagaa tggtgtgtgc cacgggctgg gaggggtgt ggccagagtt 540
tcagtttggg aagttgagaa tgttctggag atggatggcg gtagtggtgg ttgcacaact 600
gtgtgaatgc gcttaatgcc tctgaattgt gcagttacaa gtggttcgga tgggccgggc 660
gcggtggctc atgcctgtaa tcccagcact ttgggaggcc gaggcaggtg gatcatgaga 720
tcaggagatc gagaccatcc tggctaacac ggtgaaaccc catctctact aaaaaataca 780
aaaaattagc caggcatggt ggtgggcacc tgtagtccca gctacttggg aggcggaggc 840
aggagaatgg cgtgaacacg ggaggcagaa cttgcagtga gccgagatca cgccactgca 900
ctccagcctg ggcgacagag tgagactccg tctaaaaaaa aaaagtggt taagatgggc 960
cgggcatggg ggatcacgct tgcaatccca cactttgggg aggctgaggt gggtgattac 1020
gaggtcagga gttcgagacc agcctgacca ccatggtgaa accccgtctc tactaaaagt 1080
acaaaattag ccgggtgtcg tggcacacgt ctgtaatccc agctactggg gaggctgagt 1140
tgggaggatc acctgagccc agggaggtcc aggctgcagc aagccatgat tgcaccactg 1200
cactccagcc tgggtgagag agtgagaccc tgtctccaaa caaacacaca tgaaaaacag 1260
atttttttg ccaggtgcag tggctcacac ctgtaatccc agcactttgg gaggccaagg 1320
cgggtggatc acgaggtcag gtgactgaga gcatcctggc taacacggtg aaaccctggc 1380
tctactaaaa atacaaaaat ttagccgagc atggtggtgg gcacctgtag tcccagctac 1440
tcgggaggct gaggcaggag aatggcatga acctgggagg cggagcttgc agtgagctga 1500
gatcacgcca ctgcactcta gcctggggga cacagcaaaa ctgtctcaaa aaaaaaaaa 1560
aaggttttt taatttaaaa aggaaagaaa aggagagtgc tcgtgtggca ggcacctagc 1620
cctgtccagc gcaccctgag acagggatga tgtctcctcc ttgacctaag accacaagtt 1680
ctaaccaatt caaccgagga cagagcccca attccaggca gggcaatggg gtcgccttgt 1740
gaactaagat gcagatggag aagagcagac acagacacag gtcttggggc ccctgcaggg 1800

```
gtttctcact ggctttttcc ccctggattc ctatgggttc tggggaacag agttaggtcg 1860
gctggcaaga cagatgcatg aggctgtggc gcccttgaca ttgagccgga gggccagagt 1920
tcgtcattgc tgacgcagag aagctgggag ccaaggttag ccagatggtt tggaggagtt 1980
ttaaacaatc ttttcttttc tttctctttc catctgtctg tccttctttc ctcccttcct 2040
gccccctttc ttttctcctt tctttccttc ctctctcctt cctccctttt tttcttttt 2100
tttggttttc tttttgtatt agtattatta ttttttagac agggtcttgc tctgttgccc 2160
aggctggagg gcagtggcac gatcacagct cagtacaccc tcaaccttct gggttcaagc 2220
aatcctcctg ccttggcctc ccaggtagct gggactacag gcgtgtgcca ccacacctgg 2280
ttaatttttt ttttttttga gacggagtct tgctctgtca cccaggctgc agtgcagtgg 2340
cgtgatctcg gctcactgca acctccacct cccgggttca gcgatcctc ctgcctcagc 2400
ctcccgagta gctgggatta cacgcgcccg ccaccaagcc cggctaattt ttttattttt 2460
agtagagaca gagtttcacc acgttggcca ggctcgtctc aaactcctga cttagtgatc 2520
tacccacctt ggcctctcaa agtgctggga ttagaggcgt gagccaccat gcgcagccaa 2580
ttttttgtatt tttagtagag atggggtttc accatgttgg tcagtctggt ctcgaactcc 2640
tgacctcaag tgatccacct gcctcagcct cccaaagtgc tggaattaca ggcatgagcc 2700
accgcgccca gccctcttaa ccattttaa gtgcacagtt cagcagcatt aagcacattc 2760
acattgttgt gcaaccatca gcccccgtcc atctccagct ttctctttt ttttgtttgt 2820
tttgagacag ggtcttactc tctcgcccag tatagagtgc agtggtgcgg tcttggctcg 2880
ctgcaacctc tgccttccag gttcaagcta ttctcctgcc tcagtctccc cagtagctgg 2940
gattacagac acacatcacc acgccctgct aattattttg cattttagt agagatggtg 3000
tttcaccata ttggccaggc tgatcttgaa ctcctggcct caagtggtct gctccaaact 3060
gctgagatta cagccgtgag ccactgctcc cagccatctg cacctttctc atcttcccaa 3120
atgtaactat gtccccgtga aacactcact ccccattcca cctccccagc ccctggcacc 3180
ccccatttta ttctggtgct aggggaattt caaaccaggc aagtctcaac acatgctcga 3240
gtgtaagaac cagcccacag cctcgttccc taatcacggt caaaccagaa ttctactcca 3300
ggttctactc tgtgaatctg cttttctgtga atctgttact ctggggaccg cctataagtt 3360
gaatcctaca gtgtctccac ttcagtgact ggcttatttc acttttctcc tctttattta 3420
tgagacaaaa tttcgctctt gttgctcagg ctggaatgca atggcgtgat ctcggctaat 3480
tttttttgtat ttttagtaga ggcggggttt caccatgttg gccaggctgg tctcgaactc 3540
ctgacctcag acgatccact ttggccttcc aaagtgctgg gattacaggc gcggcccacc 3600
tttctcctct taatcacaca ggtaatccat acatacgaca ttcttttttt tttttgacac 3660
ggagtcttac tctgtcacct aggctggagt gcagtggcgc aatcttggct cactgcaacc 3720
tctgcctccc aggatcaagc aattctcctg cctcagcctc ctgagtagct gggattacag 3780
gtaaccatca ccacacctgg ctaaattttg tattttagt agagacgggg tttcaccacg 3840
ttggccacgc tggtattgaa ctcctggctt caagtgatct tcctgtctcg gtctcccgaa 3900
gtgctgggat tacaggaatg agccactgtg cccggccaat acgacatctg tgcaatgaag 3960
tgcaacatat aagacaccct tcccccaccc actccccca ccaccgcccc cacgcccca 4020
cccccatctc cagatcagaa cctgggggctg tgcaatttta aacgttgtag ccacttgcta 4080
cttgggtagt tgaagttcag tctcagccag gttggagtcc tggactctgg cccctctttt 4140
atttttattt tttatttttt tttgagacag agtctcgctc tgtcgcccag actggagcgc 4200
agtggtgcga tctcggctca ctgcaagctc tgcctcctga gttcacgcca ttccccccgcc 4260
tcagcctccc gagcagctgg gactacaggc gcccgccacc acacccggct aatttcttgt 4320
attttttagt agagatgggg tttcaccctg ttagccagga tggtctagat ttcctgacct 4380
tatgatccgc ctgcctcggg cctcccaaag tgctgggatg acaggagtga gccaccgcgc 4440
ccggcctctt ttttttttt tagacagtct ctgtcaccca ggctagagtg cgatggtgcg 4500
atctcggctc actgcaacct ccaccttccg ggttcaagcg attctcctgc ctcagcctcc 4560
tgagtatctg ggattacagg tgcctgtgac cacgcccggc tgattttgt atttttagta 4620
gagacggggt ttcaccacat tggtcaggct agcctcaaac tcctgacccc gtgatccttc 4680
cgcctcagcc tcccaaagtg ctgggattac aggactctgg cccatcttgg ctgctgccaa 4740
tgtccttcct tctatcttgg ttttttccaca gttacgcaca tgccagataa cggcgagtct 4800
gttccccagc aactgcaacg gatctgccca ccactgggaa atggaagacc ttgcagccca 4860
ggtctttgta gaccaagatt agattgtggt caacaaacac ctgaccttgg cctttggaac 4920
catcagccat gtcagctaaa ataaaagcag aatctggctg ggcgcagtgg ctcacgcctg 4980
taatcccagc actttggggg gctgaggtgg gcagaccacc tgaggtccgg cgttctagac 5040
cagcctgacc aatatgatga aaccccgtct ctactaaaca tacaaaaatt agctgggcat 5100
ggtggcgggc acctgtaatc ccagctactc gggaggctga ggaaggagaa ttgcttgaac 5160
cctggaggca gaggttgcag tgagccgaga ttgcgccact gcactccaac ctggactgca 5220
```

```
gaacaagact ctgtcccaaa agcagataaa taaaaataaa taaaaataaa aatatggccg 5280
ggcatggtgg ctcacacctg taatcccaac actgggaaga tgaggcgggc agatcacgag 5340
gtcagggatt cgagaccagc ctggccaaca tggtgaaacc ccgtctctac taaaaataca 5400
aaaattagcc gggcatgatg ctgcatgcct gtaatcccag ctactctgga ggctgaggca 5460
ggagaatcgc ttcatcccgg gaggtggagc ttgcagtgag ctgagatcgc gccactgcac 5520
tctagcctgg gcaaaagagt gagactccat cgcaagaaaa aaaaaaaaa aagctgcaag 5580
ctctgtctcc cgggttcaag tgattctcct gcctcagcct tccaagtagc taggattata 5640
cgcgcccgcc accatgcctg gctaattttt gtatttttag tagagatgcg gtttcaccat 5700
gttggccagg ctggtctcaa actcctgacc tcacgtgatc cacctgcctc ggcctcccag 5760
agtgctggga ttacaggtgt gaacccctgc gcctggccaa gaaaagttgc ttgaatgaag 5820
agtaaataga agacccagaa agaaatgatt cgtccgagga aggtcacaga agcaacgtaa 5880
tcaagatgga aatctgactc ttcctaattt tggccagact tcccatccct ccaaagcttt 5940
ccagactctt ccagatcatt ctagatattt ccagaaatca ttcgtgaaat ctaactagga 6000
gtagtctgta aacaatgtgt ttcacacaga tacaattcat aaacgatgag aagacaagga 6060
cacttcatga atgaaatttt tacggccggg tatgttggct cacgcctata atcccaggac 6120
tttggaagac ccaggcagga ggattgcttg agtccaggag ttcaagacca gtctgggcca 6180
catagtgaga ccctgtcgct acaaaaaatt taaaaattag gtagatatgg tggtgtatgc 6240
ctctagtttt agcttttttg gaggctgaag caggaggatc tcttgagccc aggaggttga 6300
gctgcaatga gctacgattg aactactaca ctccagtctg ggtgacagag aaagaggctg 6360
cctcaaaaaa ataaaaataa aaaataagg ccggacgcgg tggctcacgc ctgtaatccc 6420
agcactttgg gaggctgggg tgggcagacc acgaggtcag gagatcgagg ccatcctggc 6480
caacatgatg aaaccctgtc tctactgaaa acacaaaaat tagctgggcg tggtggcgta 6540
tacctgtaat cccagctact cgggaggctg aggcaggaga atcacttgaa ccagggagtc 6600
agaggttgca gcgagaggag attgtgccac tgcattccag cctggcaaca gagcaagact 6660
ccgtctcaaa aaagaaacaa caacagcaac aacaacaaaa aaaacataaa aaagttcggg 6720
cacggtggct cacacctgta atcccagcac tttgggaggc caaggtgggt agatctcttg 6780
aggtcaggag ttcaagacca gcctggccaa caaacatggt gaaaccccgt ctctactaaa 6840
aatacaaaaa gtagccgggt gtagtcccag ctactcggaa ggctgaggca ggagaatcgc 6900
ttcaacctgg gagatggaag ttgcagtgaa ctgagattgc gccactgggt gacagagtaa 6960
gactcttgtc tcaaaaaaaa aaaagaaag aaagtttaat ttaatgattc aaataatgac 7020
ctgctcgaga gataaatata aagtctaacg taagaggtgt atactttttc ctctgtcctg 7080
ctgtcctcgc cccacctcac cccaagtccc aacctgattg atcagtctcc tttccctctg 7140
gtagccccac tcccatgacc gaaccgagaa gtcatgcacc cgcataagaa ctctaatttt 7200
ttttttcaaa gtcttctcac tgccccaaaa atagtttctt tcattcccag gggatgtgaa 7260
agtgtctctc ccaattttat ttcaacctcc cagcgttcca cacatatgcc ttgcctcagc 7320
cagctttcac tgatctgcca tttccacctc ggcgctgctc ctacctgcgg aaatcctgtc 7380
catccatagt ctgatttctg ttgttccaga acattctttt ttttttcccc tggaacattc 7440
tttaagatac ctcaataaat gaaaccagag ggtatagagc agtatgaatg ggtactacaa 7500
tgtacagggg gaaatggagg ggaatatgat atactctcct ccttgtatat gcttagaatg 7560
ttctagaagg atatgcttaa aaggttagca gtcctggcca ggcgtggtgg ctcacgcctg 7620
taatctcagc actttgggat gccaacgcgg acggatcaca aggtcaggag ttctagatca 7680
gcctgaccaa tatagtgaaa cctcatcttt actaaaaata caaaaattag ccgggtacgg 7740
tggcatgtgc ctgtagtccc agctactttg gaacctgagg caggagaatc gcttgaactc 7800
gggaggcaga ggttgcagtg agccgagact gtgccattgc actgcagcct gggtgacaga 7860
acaggactcc gtctcaaaaa aaaacaaaaa aggtcagcag tcttaattgt cagagggcag 7920
gggacctgca tgggatggag gttttttccat gtgtccacct tttgagccct tttgcttttt 7980
tttttaaat cttttttattg tagcaaaata gatataaaat ttaccttttt ttttttgag 8040
acagggtctc actctgttgc ccaggttgga gtgcagtggc atgatcttgg ctcactgcag 8100
cctctgcctc ctgggttcaa gcgattttcc tgcctcagcc tcccgagtag ctgggattac 8160
aggtgcttgc caccataccc ggctaatttt gtattttttag tagagacggg gttacgccaa 8820
gttggccaag ctggtcgcaa actcctgacc tcaagtgatc cgccccctc ggcctcccaa 8280
agtgctggga ttacaggcag gagccaccac gctcagccct aaaatttacc atattaacca 8340
ttttcaagtt cagaggcatt aaagtatact cacattgttg ttcaactgtc accactactc 8400
acctgcagaa gttttttcatc ttgcaaagtg aaaacccccat acccaatttc ccgttcttcc 8460
tctcagcccc tggtaatcac tattctactt tttgtctact ttttgtatga atttgcctat 8520
tctaggacct aatagaagtg gagtcaaacc tgtttgtcct tttgtggctg gcttatttca 8580
cccggcctta tatcctcaag gtttatccat gttggaggat gcctgaattt ccttgttttt 8640
```

```
aaggctaaat tttattctat tatattaata tgtcatattt tgtttatcct gatggacact 8700
tgggttgatt ccacctttgg ccattttgaa gaagcttcta tgtacatggt atacacatat.8760
atctttgggt.ctctgctttc aatgcttttg.gggatatttc.agatgtggaa.tttctggatt.8820
ataaggcaat.tttttttttt.gagacagact.ctcgctcttg.tcgcccaggc tagaatgtgg 8880
tggtgtgatc tatttttttt ttttttttga gatggagtct cgctctgtcg cccaggctgg 8940
agtgcagtgt cacgatctca gctcactgca agctccgcct cccaggttcg tgccattctt 9000
atgcctcagc ctcccaagta gctgggacca cagccgccca ccacctcacc cggctaattt 9060
ttgtattttt agtagagaca gggtttcact atgttggcca ggatggtctc gatctcctga 9120
cctcgtgatc cgcctgcctc ggcctcccaa agtgctggga ttacaggcgt gagccactgc 9180
acccggctgg tgtgatcttg gctcgctgca acctctgcct cccaggttca agcgattctt 9240
gtgcctcagc ctctccgcag ctgggactac aggtgtgcgc cactgtgccc agctactttt 9300
taaaaatata tgtgtattta ttatactttt aagttctggg atacatgtac agaacgtgca 9360
ggtttgttac ataggtatac atgtgccatg gtggtttgct gcacccatca accggtcatc 9420
tacattaggt atttctccta atgctatccc ttccctagcc ctccactctc ccggtttttt 9480
gttttgtttt gttttgttgt tttgttttta gtagagacag ggtctcacca tgttgcccag 9540
gctagtcttg aactcctgac ctcaagtgat ccgcccacct cagcctccca aagtgctggg 9600
attacaggtg tgacccacta cactcggcct tattttcact tatttatgca attttcacta 9660
ttgctatatt ctaggaggca ctgtggaatt gcactgtgga attttagtat tgctgtattt 9720
cagcaagcca tgaggtctgt cagcacacgg ctttgggcat tttgtgaaga taactgatgc 9780
cagctgagcc aaggcaggtt cctgattcca cccactggca ggcaccgagg tctctgctgt 9840
tactgatggt ttctctgtgg attgatgggc ttaaggccag accacagctg caatggctca 9900
cctctgccaa aggccaggct cgttgggcca gagacctatt ccggactgag cctcctggtg 9960
aattagagag gtagaaaatg ggaggacggg ggcaggtggg ctattacagc gaggaaaatg 10020
cccaccctga gttgtattag ataactttgg gagttcagga actttccaat aaagtgggtt 10080
ccacagcagg attacttact gactccctaa tagaaagaag gcaggcacag gccgggcgtg 10140
ttggctcatg tctgtaatcc cagcacgttg ggaggctgag gcgggtggat cacaaggtca 10200
ggagatccag accatcctgg ctaacaaagt gaaaccccgt ctctactaaa aatacaaaaa 10260
attaggctgg gcgtggtggc tcgtgcctgt aatcccagca ctttgggagg ctgaggcggg 10320
cggatcacga ggtcaggaga tcgagaccgt cctggctaac acggtaaaac cccatctcta 10380
ctaaacatac aaaaaaaaat tagccaggtg tggtggcggg cgcctgtagt cccagctact 10440
caggaggctg aggcaggaga gtggtgtgaa ctcgggaggc gcagcttgca gtgagccgag 10500
actgcgccac tgcactccag cctgggcaac agacagagac tccgtctcaa aaaaaaaaaa 10560
aaaaaataca aaaaattagc caggcgtggt ggcacgtgca cgtgactgta gtcccagcta 10620
cttgggaggc tgaggcagga gaattgtttg aacccgggag acggaggttg cagtgagccg 10680
agatcgcgcc actgcactcc agcctgggtg acagagctag actccgtcaa aaaacaaaaa 10740
acaaaaaaca aaaaaacaaa aaaaaaaaaa cagcaggaac tggcaggtct tccctgaaga 10800
gataaaaaaa aaaaaatgca gttgcaacac aaaagcagcc acagagaaaa gcaaacccat 10860
atatggtatt tattatgcac cgagtgtggc tctaatcact ttttttttt taattgagag 10920
acagcctggc tctgttgatt gggctggagt gcagtggcgc gaccgtagct cattgcagcc 10980
tcaacctcct tggctcaagc aatcctccta cctcagcctc ctgagtagct gggaccacag 11040
gtgtgagcca ccacgcctgg ctaattgttt ttttttttt tgtagagaca gggtctcact 11100
atgtggccca ggctggtttc caactcctgg gctcaagtga tcctcccacc tctgcctccc 11160
aaagtgctgg ggattacagg catgagccac ctcgcctggc ctctagtcgc tttatatatt 11220
ttaacttaat ccttacaaga gccctgtgag ctagttacag gagcacaaat ggaaaccaag 11280
aaacagaaaa atttatcagc atgactcagt cctcagagcc atgtatggcc gtgtccgtgc 11340
atggcaggca ggtcaggggc ctggggaacg ctgttctgga aaccttggcc aggccttggc 11400
acccgaggaa tgtgcttttc agagtttttg tggctctttt ccagacctgc cctgacctct 11460
agctctggga actatgtaag ccaagtgcct tccgggaagg gagtccctct cctggtaact 11520
ctttctgggt aaccagatgt ggactcatga cacacactga gcctacgtct tataattttt 11580
tgttttttgtt tttgagacag tttcggtctt cttgcccagg ctggagtgca atggtgcgat 11640
ctcggctcac tgcaacctct gcctcccagg ttcaagcgat tctcctgcct cagcctccct 11700
agtagctgga attgcaggca tgcgccacca cgcctggcta attttttgta ttttttttt 11760
tttagtagaa acggggtttc accttgttag ccaggctggt caccaactcc tgacctcagg 11820
tgatccgccc acctctgcct cccaaagtgc tgggattaca ggtgtgagac agctgtgagc 11880
caccacgccc ggcgcatttt ttttttcttt tttttcagag ggagtgtccc tctgtcaccc 11940
aggctgaagt gtagtggcgt gatctcggcc cactgtaacc tctatctccc aggttcaagt 12000
gattctcctg actcagcctc ccaagtagct gggactacag gcgcctgcta ccatgcctgg 12060
```

```
ctaattttttg tagttttagt agaaaccggg ttttgccatg ttggccaggc tggtctcaaa 12120
ctcttgactt caggtgatcc acctgccttg gccttctgaa gtgctgggat tatagggcat 12180
gagccactgt gactggccat cttaaatttt ttttttttt tttttttttt ttgagacagg 12240
gtttcactct gtcgcccagg ctggagtgca aaggcgcgat cttggttcac tgcaagctcc 12300
gcctcctggg ttcatgccat tctcctgcct ctgcctcatg agtaactgag actacaggcg 12360
cccaccacca cgcccggcta atttttttgt atttttttag tagagatggg gtttcacctt 12420
gttagccagg atggtctcga tctcctgacc tcgtgatcca cccgtctcgg cctcccaaaa 12480
tgctggcatt acaggcgtga gccaccgcac ccagccttaa attttttttt aagggaaatc 12540
aaacccagtg atattgggcc agtacagtgg ctcacacctg taattccacc actttgggag 12600
gctgaggcag gtgaatcacc tgaggtcagg agttcgagac cagcccggca acatggcga 12660
aaccccgtct ctactaaaaa taagaaaatt agccgggcgt agtggcatgc acctgtaatc 12720
tcagctactc gggaagctga ggcatgagaa tcgcttgaac ctgggagcag gacgttgcag 12780
tgaaccgata tcacaccact gcactccagc ctgggtgaca gagcaagact ctgtctcaaa 12840
aaaaaaaaga aaaaaaaatc cagtgatact tactttttaa attttttattt acttattttt 12900
tgctttaagt tgaatctttta aacttatctt tattttttgag acacagtctc actctgtcgc 12960
ccaggctgga gtgcagtggt acaaccacag ctcagtgcag cgttgacctc ctgggctcaa 13020
gccatcctcc cgcctcagcc tcccgagtag ctgggactac aggcgcacac aaccatgtcc 13080
agcttattt tgtattttttt gtagagacag ggtcccactg tgttgccctg gcttgttctg 13140
aactcctagg ctcaagtgat cccccccgcct caccctccca aagtgctggg attacaggca 13200
tgagccacca catccagact tcactttttt gtttaatgtc gcaaatggca taaggaatgg 13260
gattcaatgg ggacacattt ataaacgttg cagcagctcc tagaacttgc ctatccttgt 13320
aaacttctct aggtgattgc taattacttc ttttttttttt ttttttttttg agacggagtc 13380
tcactctgtc gcccaggctg gagtacagtg gcgcaatctc gtctcactgc aaactccacc 13440
tcccgggttc acgccattct cctgcctcag cctcccgagt agctgggact acaggcaccc 13500
gccaccacgc ccggctaatt ttttgtattt ttttttagta gaggtggggt ttcactgtgt 13560
tatccaggat ggtcttgatc tcctgacctc gtgatccacc tgcctcagcc tcccaaagtg 13620
ctgggattac aggcgtgagc caccatgccc agcccgctaa ttatttcaat ttgaccttga 13680
cactgagcct gccaagtagg ttcaagcatt ttgatggccc ctttacaggt tgggaaagct 13740
aatttatctg tccaaggccg aattctgaaa ctgagtctta actgccaaaa attcttatca 13800
tcaatttctt cttctgggtt gggcacagtg gctcatgcct gtaaagccag caatttgaga 13860
ggcatcatga tgcaagagga agaggattga gtgaagctag gagtttggga ccagcctggg 13920
caacatagtg agacecccatc tataaaaaaa aattaaaaat tagttgggca tggtggtgca 13980
ctcctgtggt cctagctatt caggaggctg aggtgggagg attccttgag cccaggggttg 14040
acgctgcaga gagctgtgat cacgccactg cagtccagcc tgagtgacag ctggaaataa 14100
tgataaataa ataataaata attatttaaa aaattataat aaaaataatt aaaaaattat 14160
tttccctgat taatcttttt ttttgtcctt ctgagagttc aatttgtccc ttttctgcct 14220
ggtctcctag gtttccctaa aatcctgctg agaggttagc actgcctgcc aaagtcagtt 14280
tgcaaaatcc cagagaaatc cagcttattc ctgggggaac cgccaagact gcccagccct 14340
gtgtggggtt caggcaagtt tctcacatgt gcctttttgg caagaggcct ctggcaaccc 14400
catgagtccc caaagagact caattctaaa agttggtctc caccagctct ctgtggctta 14460
ggggttcaag ttcaactgtg aaagccctgt tttgtttttga ttttgctttg agggagagga 14520
aaccgcccctt ctgtttgttc aactccttct cctaagggga gaaatcaata tttacgtcca 14580
gactccaggt atccgtacaa ttgatttttc agatgtttat actcagccaa aggcgggatc 14640
ccacaaaaca aaaaatattt ttttggctgt acttttgtga agattttatt taaattcctg 14700
attgatcagt gtctattagg tgatttggaa taacaatgta aaaacaatat acaacgaaag 14760
gaagctaaaa atctatacac aattcctaga aaggaaaagg caaatataga aagtggcgga 14820
```